

THE OCCURRENCE OF PROTURANS IN WESTERN NORTH AMERICA.

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While on a recent visit to the Yosemite Valley, California, in company with my brother, Dr. Fred Ewing, a small amount of decaying leaves and twigs, heavily infested with minute insects, was obtained. The leaves and twigs were picked up from the north side of the floor of the valley, a short distance east of the Yosemite Falls. They were sent by post to Mr. H. S. Barber at Washington, D. C., who placed the material in a "Berlese trap" and obtained thereby a large number of minute insects and other arthropods. Among these were two species of Protura.

The distribution of the Nearctic Proturans has been previously discussed by the writer.¹ It is sufficient here to state that up to the present no record of them occurring west of the Rocky Mountains has been obtained. Of these two species from the Yosemite one is new, and the other has not been previously reported from America.

Eosentomon yosemitensis, new species.

Head decidedly rounded laterally, about one and a half times as broad as long. Pseudoculi not conspicuous. Rostrum short. Mandibles extending to about the tip of rostrum.

Thorax very poorly chitinized, whitish; apodemes very little developed. Prothorax much reduced, with four dorsal setae arranged in a transverse row. Each of the thoracic spiracles with an anterior and a posterior seta situated at the outer border of the chitinous rim.

Abdomen slightly yellowish. Appendages on the ventral sides of the first three segments large and subequal. Eighth abdominal segment fully twice as broad as long, with about a dozen dorsal setae arranged in two irregular rows. Segments IX-XI together about as long as VIII. Telson with angulate posterior margin.

Legs rather weak and slender, in keeping with the slender body. Claw of first leg but little flattened and very pointed. Tarsus I a third longer than tibia I, without dorsal sense seta and with no terminal seta approximating the claw in thickness. Legs II and III subequal, with similar, sharp claws, each of which bears a seta-like tooth at the base.

Length when extended nearly to maximum, 0.96 mm.; width at metathorax, 0.06 mm.

Type locality.—Yosemite Valley, California.

Type.—Cat. No. 40485, U. S. N. M.

Described from a single female specimen taken by means of

¹Ewing, H. E. Nearctic Proturans. *Science*, Vol. LV, No. 1435, June 30, 1922.

a "Berlese trap" from decaying leaves and twigs collected from the floor of Yosemite Valley, California, April 15, 1927, by the writer. The species is most nearly related to *E. transitorium* Berlese, but differs from Berlese's species in size and in the absence of the sensory seta on the first tarsus and in some other particulars.

***Acerentomon microrhinus* Berlese.**

Three adult females were obtained from the same situation as the single specimen of *Eosentomon yosemitensis*. These specimens appear to agree in every detail with the excellent description and figures of *Acerentomon microrhinus* given by Berlese.

REMARKS ON THE DISTRIBUTION OF THE PROTURA.

Since the publication of the paper on Nearctic Proturans (1922) several new records have been obtained for the United States, including some from Florida. The Florida records were all from Orlando, far to the north of the Tropical Life Zone. The writer has searched in vain for Proturans in tropical Florida and in the Sonoran Region of Arizona. If they occur in these areas they must be exceedingly rare. Our North American Proturans are associated almost entirely with moist deciduous forests where they occur under favorable situations in the slowly decaying litter of twigs and leaves lying on the ground.

**A PROTOZOAN AND A BACTERIAL DISEASE OF EPHESTIA
KUEHNIELLA ZELL.**

By G. F. WHITE, *Bureau of Entomology.*

A reference to the Mediterranean flour moth, *Ephestia kuehniella*, at once recalls heavy financial losses, especially marked in flour mills. Although primarily a pest, this species is serving various students of biology a useful purpose. Richardson while making physiologic and Whiting genetic studies, using this insect, have encountered a protozoan disease of it which has proved to be particularly troublesome to them.

The sporozoan causing the disease gains entrance to the larva with the food. The young parasites find their way through the gut wall and enter fat cells. Here they grow and multiply to an enormous extent, causing their host to sicken and usually to die. Death may take place during the larval, pupal, or adult stage.

The disease is very infectious and causes a heavy mortality in insect cultures. When working on problems employing this insect one is compelled to use extreme care to prevent the spread